

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE  
THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of	Appeal No.
Laure CARBONNE et al.	Conf. 9532
Application No. 10/549,570	Group 3747
Filed May 24, 2006	Examiner Keith Coleman

METHOD FOR SYNCHRONIZING INJECTION WITH THE ENGINE  
PHASE IN AN ELECTRIC INJECTOR CONTROLLED ENGINE

**REPLY BRIEF**

MAY IT PLEASE YOUR HONORS:

This is a reply to the Examiner's Answer mailed  
December 26, 2008.

**STATUS OF CLAIMS**

Claims 1-19 are pending. No claims have been withdrawn or canceled. Claims 1-19 have been finally rejected, from which this appeal is taken.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The first ground for review on appeal is whether claims 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13 and 14 are anticipated by MORIKAWA (U.S. Patent 6,138,638) sufficient to support a rejection under 35 USC §102(b).

The second ground for review on appeal is whether claims 5, 7, 13, 14 and 15-19 are unpatentable over MORIKAWA sufficient to support a rejection under 35 USC §103(a).

It is noted that claims 13 and 14 have been included in both rejections under review.

**ARGUMENT**

In the Examiner's Response to Arguments at page 13, line 1 to page 15, line 20 of the Examiner's Answer, the Examiner refers to Figures 14 and 15 of MORIKAWA (U.S. Patent 6,138,638) and states: "Morikawa explicitly states synchronizing the fuel timing without the camshaft sensor as stated on Col. 37, lines 29-36. . ."

However, the applicant believes that the teachings of MORIKAWA have been misconstrued in a fundamental fashion.

First, consider Figure 15 of MORIKAWA, which is reproduced below.

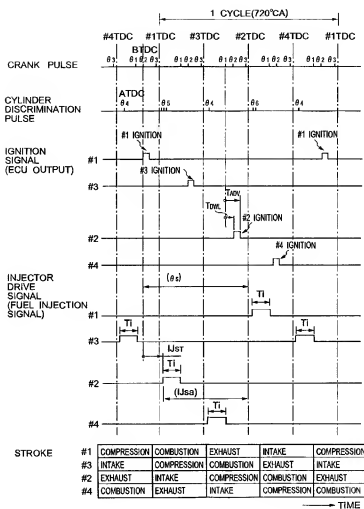


FIG.15

Figure 15 is explained in MORIKAWA at column 37, lines

12-45:

Then, at step S2, the determination of a cylinder, such as a cylinder to be ignited and a cylinder to be injected, is carried out on the basis of the input pattern of the crank pulse and the cylinder determining pulse and on the basis of the combustion stroke sequence of the respective cylinders

(cylinder #1→cylinder #3→cylinder #2→cylinder #4 in this preferred embodiment).

That is, as shown in time charts of FIGS. 14 and 15, for example, if a cylinder determining pulse is inputted before the current crank pulse is inputted after the last crank pulse is inputted, it can be determined that the current crank pulse is a crank pulse  $\theta 1$  and the next inputted crank pulse is a crank pulse  $\theta 2$ .

In addition, when no cylinder determining pulse is inputted between the last and current inputs of crank pulses and when a cylinder determining pulse is inputted between the crank pulse input before last and the last crank pulse input, it can be determined that the current crank pulse is the crank pulse  $\theta 2$  and the next inputted crank pulse is a crank pulse  $\theta 3$ . When no cylinder determining pulse is inputted between the last and current inputs of crank pulses and between the crank pulse input before last and the last crank pulse input, it can be determined that the currently inputted crank pulse is the crank pulse  $\theta 3$  and the next inputted crank pulse is the crank pulse  $\theta 1$ .

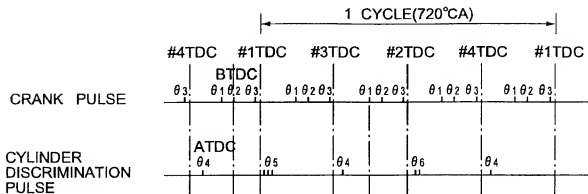
Moreover, when three cylinder determining pulses (a cylinder determining pulse  $\theta 5$  corresponding to the protrusion 41b) are inputted between the inputs of the last and current crank pulses, the cylinder #3 is positioned at a crank angle of the next compression top dead center, and it can be determined that the cylinder to be ignited is the cylinder #3.

FIG. 14 shows a time chart during the stratified combustion, and FIG. 15 shows a time chart during the uniform premixed combustion.

As has been clearly taught above: "Then, at step S2, the determination of a cylinder, such as a cylinder to be ignited and a cylinder to be injected, is carried out on the basis of the input pattern of the crank pulse and the cylinder determining pulse and on the basis of the combustion stroke sequence of the respective cylinders (cylinder #1-cylinder #3-cylinder #2-cylinder #4 in this preferred embodiment)."

It is thus clear from the text that BOTH crankshaft information and camshaft information are used to identify the position of the engine and thus determine when to ignite and/or when to inject.

There has thus been an arbitrary picking and choosing from a portion of Figure 15 of MORIKAWA, reproduced below.



The Examiner has thus fundamentally misconstrued the teachings of Column 37, lines 29-36 of MORIKAWA. It is the essence of hindsight reconstruction to "cut and paste" from the text to justify the proposition. See, e.g., *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). But see *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

In contrast, the text from MORIKAWA quoted above contains **a detailed explanation of how to use the two signals in order to determine the position of the engine.**

That is, the first paragraph of the quote is saying (in other words) that when one "cylinder discrimination pulse" is detected between two "crank pulse", that implies that the last detected "crank pulse" is 01.

The next paragraph explains how to determine 02, then how to determine 03, and in each case, the relation between the "cylinder discrimination pulse" signal and the "crank pulse" signal is clearly explained by MORIKAWA.

The Examiner has accordingly cut one small sentence from this and misread it.

### **Conclusion**

It is believed that the foregoing discussion underscores the impropriety of the rejections on appeal and

supports the showing made in Appellant's main brief that those rejections should be reversed. Such action is accordingly respectfully requested.

Respectfully submitted,

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